Control Technology Rankings

History:

- At the April Boiler WG meeting, EPA presented preliminary control technology rankings and boiler counts.

- After the April meeting, the Boiler WG reduced the list of control devices to evaluate by eliminating controls not applicable to boilers. The remaining control devices were given a ranking of 1 to 4, with 1 being the highest level of control and 4 indicating very little emissions reductions.

- During July 1 and July 14 Control Technology Task Group teleconferences, the current control technology methodologies were established.

Current Status:

- Tables I-1, I-2, and I-3 present the latest control technology assessments. Table I-1 includes inventory and survey database boiler counts for each control device and preliminary rankings of these devices. Table I-2 groups the control devices from Table I-1 into similar control types (e.g., fabric filters, cyclones). Table I-3 is a list of control devices and control combinations effective at reducing HAP emissions from boilers.

Notes:

- The rankings of the control technologies are based on the experience of the control technology task group members and not on detailed control efficiency data.

- These control devices and combinations were put into a hierarchy for use in identifying costing algorithms by the Economics Task Group. The rankings were also used to illustrate potential preliminary MACT floor levels of control (see boiler work-in-progress posting summarizing preliminary MACT floor analyses). A more rigorous analysis using emissions data and considering detailed control and fuel information for each boiler will be necessary to develop actual MACT floor analyses.

- The rankings in Table I-3 are based on the information in Table I-2. During the development of Table I-3, a single control device outlier within a control group in Table I-2 was ignored if there were more than three controls in that group. If there was an outlier and three or less controls within that group, or if there was more than one outlier in a group, a range was assigned for the ranking (e.g., 1-2).

- When ranking a control combination, the highest ranking control within a combination was used (i.e., if a fabric filter has a ranking of 1 for metals and a cyclone is given a ranking of 4 for metals, the fabric filter/cyclone combination has a 1 ranking for metals).

- An asterisk indicates that the control device must be used in combination with another control.

Table I-1.Control Device Rankings

(1=most effective, 4 = least effective)[1]

Control Device Description	Control Device Code	GCP	Solid Materials				Liquid Materials				Gas Materials				Inventory Database		Survey Database	
			Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	**Combustor Count**	**Percent of Total Combustors**	**Combustor Count**	**Percent of Total Combustors**
No Equipment	000														26,469	38.09%	0	0.00%
Wet Scrubber High Efficiency[2]	001				2	3			2	3					296	0.43%	67	3.14%
Wet Scrubber Medium Efficiency[2]	002				2	3			2	3					237	0.34%	72	3.37%
Wet Scrubber Low Efficiency[2]	003				2	3			2	3					53	0.08%	16	0.75%
Gravity Collection High Efficiency	004					4				4					39	0.06%	55	2.58%
Gravity Collection Medium Efficiency	005					4				4					114	0.16%	0	0.00%
Gravity Collection Low Efficiency	006					4				4					96	0.14%	0	0.00%
Centrifuge Collection High Efficiency	007					4				4					485	0.70%	56	2.62%
Centrifuge Collection Medium Efficiency	008					4				4					717	1.03%	65	3.05%
Centrifuge Collection Low Efficiency	009					4				4					144	0.21%	19	0.89%
Electrostatic Precipitator High Efficiency	010					2				2					750	1.08%	241	11.29%
Electrostatic Precipitator Medium Efficiency	011					2				2					118	0.17%	33	1.55%
Electrostatic Precipitator Low Efficiency	012					2				2					30	0.04%	4	0.19%
Gas Scrubber, General	013				2	3			2	3			2	3	86	0.12%	10	0.47%
Mist Eliminator High Velocity	014					4				4					20	0.03%	9	0.42%
Mist Eliminator Low Velocity	015					4				4					8	0.01%	5	0.23%
Fabric Filter High Temperature	016				4	1			4	1					500	0.72%	36	1.69%
Fabric Filter MediumTemperature	017				4	1			4	1					185	0.27%	31	1.45%
Fabric Filter Low Temperature	018				4	1			4	1					129	0.19%	20	0.94%
Catalytic Afterburner	019														32	0.05%	1	0.05%
Catalytic Afterburner - Heat Exchange	020														20	0.03%	0	0.00%
Direct Flame Afterburner	021														161	0.23%	4	0.19%
Direct Flame Afterburner - Heat Exchange	022														42	0.06%	2	0.09%
Flaring	023														26	0.04%	0	0.00%
Modified Furnace/Burner Design	024														132	0.19%	34	1.59%
Staged Combustion	025														59	0.08%	49	2.30%
Flue Gas Recirculation	026														150	0.22%	41	1.92%
Reduced Combustion- Air Preheat	027														15	0.02%	84	3.94%
Steam Or Water Injection	028														14	0.02%	8	0.37%
Low-Excess - Air Firing	029	x	3				3				3				116	0.17%	76	3.56%
Fuel - Low Nitrogen Content	030														4	0.01%	5	0.23%
Air Injection	031														73	0.11%	0	0.00%
Ammonia Injection	032														15	0.02%	26	1.22%
Control Of % O2 In Combustion Air	033	x	3				3				3				118	0.17%	0	0.00%
Wellman-Lord/Sodium Sulfite Scrubber	034			4	2	3		4	2	3			2	3	0	0.00%	3	0.14%
Magnesium Oxide Scrubbing	035			4	1	3		4	1	3		4	1	3	5	0.01%	0	0.00%
Dual Alkali Scrubbing	036			4	1	3		4	1	3		4	1	3	5	0.01%	0	0.00%
Ammonia Scrubbing	038														0	0.00%	3	0.14%
Catalytic Oxidation-Flue Gas Desulfurization	039				1	3			1	3			1	3	7	0.01%	0	0.00%
Alkalized Alumina	040			4	1	3		4	1	3		4	1	3	12	0.02%	0	0.00%
Dry Limestone Injection	041			4	1	*		4	1	*					50	0.07%	0	0.00%
Wet Limestone Injection	042			4	1	*		4	1	*					16	0.02%	0	0.00%
Sulfur Plant	045														12	0.02%	0	0.00%
Process Change	046														30	0.04%	0	0.00%
Vapor Recovery System	047														19	0.03%	0	0.00%
Activated Carbon Adsorption	048		2	1			4	1			4	1			10	0.01%	0	0.00%
Liquid Filtration System	049														3	0.00%	0	0.00%
Packed-Gas Absorption Column	050				1	4			1	4			3	1	10	0.01%	0	0.00%
Tray-Type Gas Absorption Column	051				1	4			1	4			3	1	11	0.02%	2	0.09%
Spray Tower	052				2	3			2	3					10	0.01%	3	0.14%
Venturi Scrubber[2]	053				2	3			2	3					126	0.18%	88	4.12%
Process Enclosed	054														9	0.01%	0	0.00%

Table I-1.Control Device Rankings

(1=most effective, 4 = least effective)[1]

Control Device Description	Control Device Code	GCP	Solid Materials				Liquid Materials				Gas Materials				Inventory Database		Survey Database	
			Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	**Combustor Count**	**Percent of Total Combustors**	**Combustor Count**	**Percent of Total Combustors**
Impingement Plate Scrubber	055				4	4				4					7	0.01%	0	0.00%
Dynamic Separator (Dry)	056					4				4					4	0.01%	0	0.00%
Dynamic Separator (Wet)[3]	057				4	4			4	4					1	0.00%	1	0.05%
Mat or Panel Filter	058														6	0.01%	0	0.00%
Metal Fabric Filter Screen	059														3	0.00%	1	0.05%
Process Gas Recovery	060														5	0.01%	0	0.00%
Dust Suppression-Water Spray Vapor Space Tank	061														10	0.01%	0	0.00%
Dust Suppression- Chem Stabilization/Wet Agents	062														2	0.00%	0	0.00%
Gravel Bed Filter Roof Tank	063														17	0.02%	7	0.33%
Catalytic Reduction Tank	065														9	0.01%	1	0.05%
Wet Lime Slurry Scrubbing	067			4	1	*		4	1	*		4	1	*	20	0.03%	4	0.19%
Alkaline Fly Ash Scrubbing	068			4	1	*		4	1	*		4	1	*	2	0.00%	3	0.14%
Sodium Carbonate Scrubbing	069			4	1	*		4	1	*		4	1	*	5	0.01%	0	0.00%
Sodium-Alkali Scrubbing System	070			4	1	*		4	1	*		4	1	*	14	0.02%	4	0.19%
Fluid Bed Dry Scrubber	071			4	1	*		4	1	*		4	1	*	5	0.01%	2	0.09%
Tube And Shell Condenser	072														15	0.02%	0	0.00%
Refrigerated Condenser	073														1	0.00%	0	0.00%
Barometric Condenser	074														0	0.00%	1	0.05%
Single Cyclone Devices	075					4				4					133	0.19%	49	2.30%
Multiple Cyclone w/o Fly	076					2				3					868	1.25%	494	23.15%
Multiple Cyclone w/ Fly Part. Air Filter Ash Reinj.	077		4			2	4			3					143	0.21%	358	16.78%
Baffle	078					4				4					4	0.01%	22	1.03%
Dry Electrostatic Granular Filter	079					1									40	0.06%	9	0.42%
Chemical Oxidation	080														6	0.01%	1	0.05%
Chemical Reduction	081														2	0.00%	0	0.00%
Chemical Neutralization	083														0	0.00%	1	0.05%
Wet Cyclonic Separator[3]	085				4	3			4	3					1	0.00%	5	0.23%
Water Curtain	086														2	0.00%	3	0.14%
Conservation Vent	088														1	0.00%	0	0.00%
Bottom Filling	089														1	0.00%	0	0.00%
Conversion To Variable	090														3	0.00%	0	0.00%
Moving Bed Dry Scrubber for EFR Tank	098														1	0.00%	4	0.19%
Miscellaneous Control Devices	099														357	0.51%	82	3.84%
High Efficiency	101														14	0.02%	6	0.28%
Catalytic Oxidizer (For CO & VOC)	200														0	0.00%	2	0.09%
Duct Sorbent Injection	201			4	2	*		4	2	*		4	2	*	1	0.00%	0	0.00%
Evaporative Cooler	202														4	0.01%	0	0.00%
Furnace Sorbent Injection (Dry)	203			4	3	*		4	3	*		4	3	*	0	0.00%	16	0.75%
Rich Burn (IC Engines Only)	205														2	0.00%	0	0.00%
Low NOx Burners	206														193	0.28%	48	2.25%
Pre-Stratified Charge With Spark Angle Adj.	208														62	0.09%	0	0.00%
Selective Non-Catalytic Red. (NH3 Or Urea Inj)	209														20	0.03%	13	0.61%
Ingnition Timing	211														0	0.00%	1	0.05%
Air To Fuel Ratio	212	x	3				3				3				137	0.20%	286	13.40%
Venturi Scrub., Imping. Scrub., Mist Eliminator	220				2	2			3	3					0	0.00%	3	0.14%
Venturi Scrub, Imping. Scrub, Cyclones	221				2	2			3	3					6	0.01%	10	0.47%
Spray Chamber, ESP	222				1	1				2					0	0.00%	3	0.14%
Multiple Cyclone, General	253					2				3					286	0.41%	0	0.00%
Collectors, Settling Chambers, Separators-General	254					4									54	0.08%	0	0.00%
Fabric Filter, General	255				4	1			4	1					119	0.17%	0	0.00%
Wet Scrubber, General[2]	256				2	3			2	3					49	0.07%	0	0.00%
Esp, General	257					2				2					113	0.16%	0	0.00%

Table I-1.Control Device Rankings

(1=most effective, 4 = least effective)[1]

Control Device Description	Control Device Code	GCP	Solid Materials				Liquid Materials				Gas Materials				Inventory Database		Survey Database	
			Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	**Combustor Count**	**Percent of Total Combustors**	**Combustor Count**	**Percent of Total Combustors**
Spray Dryer, General	261			4	1	*		4	1	*					2	0.00%	0	0.00%
Flue Gas Desulfurization, General	264			4	1	*		4	1	*					6	0.01%	0	0.00%
Over - Fire Air (OFA), General	265		3												1	0.00%	0	0.00%
Limestone Injection, General	266			4	1	*		4	1	*					34	0.05%	0	0.00%
Dry Scrubbing, General	267			4		*		4	1	*					2	0.00%	0	0.00%
Selective Catalytic Reduction (SCR)	269														19	0.03%	0	0.00%
Fuel - Low Sulfur Content	271														14	0.02%	0	0.00%
Unknown Control Device Equipment	273														20	0.03%	0	0.00%
Demister	275														1	0.00%	0	0.00%
Unspecified[4]	300[1]														7	0.01%	32	1.50%
No Information Provided[5]	NA[2]														36,826	52.99%	654	30.65%

[1] These rankings are based on the experience of the members of the control technology task group, not on detailed control efficiency data.

[2] Wet scrubbers get some control of water soluble organics, such as formaldehyde, acetaldehyde, and acrolein.

[3] Cyclonic devices get some control of inorganics for coal, but these devices may not get any control of inorganics from other fuels.

[4] Control device code 300 and all non-valid codes in the database.

[5] Control device code in the database is blank.

[6] Asterisk denotes that the control device must be used in tandem with another control.

Table I-2.Control Device Rankings- Sorted by effectiveness and similar controls

(1=most effective, 4 = least effective)[1]

Control Device Description	Control Device Code	GCP	Solid Materials				Liquid Materials				Gas Materials				Inventory Database		Survey Database	
			Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	Combustor Count	Percent of Total Combustors	Combustor Count	Percent of Total Combustors
Fabric Filter High Temperature	016				4	1			4	1					500	0.72%	36	1.69%
Fabric Filter MediumTemperature	017				4	1			4	1					185	0.27%	31	1.45%
Fabric Filter Low Temperature	018				4	1			4	1					129	0.19%	20	0.94%
Fabric Filter, General	255				4	1			4	1					119	0.17%	0	0.00%
Spray Chamber, ESP	222				1	1				2					0	0.00%	3	0.14%
Electrostatic Precipitator High Efficiency	010					2				2					750	1.08%	241	11.29%
Electrostatic Precipitator Medium Efficiency	011					2				2					118	0.17%	33	1.55%
Electrostatic Precipitator Low Efficiency	012					2				2					30	0.04%	4	0.19%
Dry Electrostatic Granular Filter	079					1									40	0.06%	9	0.42%
Esp, General	257					2				2					113	0.16%	0	0.00%
Wet Scrubber High Efficiency[2]	001				2	3			2	3					296	0.43%	67	3.14%
Wet Scrubber Medium Efficiency[2]	002				2	3			2	3					237	0.34%	72	3.37%
Wet Scrubber Low Efficiency[2]	003				2	3			2	3					53	0.08%	16	0.75%
Wet Scrubber, General[2]	256				2	3			2	3					49	0.07%	0	0.00%
Gas Scrubber, General	013				2	3			2	3			2	3	86	0.12%	10	0.47%
Packed-Gas Absorption Column	050				1	4			1	4			3	1	10	0.01%	0	0.00%
Tray-Type Gas Absorption Column	051				1	4			1	4			3	1	11	0.02%	2	0.09%
Impingement Plate Scrubber	055				4	4				4					7	0.01%	0	0.00%
Venturi Scrub., Imping. Scrub., Mist Eliminator	220				2	2			3	3					0	0.00%	3	0.14%
Venturi Scrub, Imping. Scrub, Cyclones	221				2	2			3	3					6	0.01%	10	0.47%
Venturi Scrubber[2]	053				2	3			3	3					126	0.18%	88	4.12%
Wellman-Lord/Sodium Sulfite Scrubber	034			4	2	3		4	2	3			2	3	0	0.00%	3	0.14%
Magnesium Oxide Scrubbing	035			4	1	3		4	1	3		4	1	3	5	0.01%	0	0.00%
Dual Alkali Scrubbing	036			4	1	3		4	1	3		4	1	3	5	0.01%	0	0.00%
Wet Lime Slurry Scrubbing	067			4	1	*		4	1	*		4	1	*	20	0.03%	4	0.19%
Alkaline Fly Ash Scrubbing	068			4	1	*		4	1	*		4	1	*	2	0.00%	3	0.14%
Sodium Carbonate Scrubbing	069			4	1	*		4	1	*		4	1	*	5	0.01%	0	0.00%
Sodium-Alkali Scrubbing System	070			4	1	*		4	1	*		4	1	*	14	0.02%	4	0.19%
Dry Scrubbing, General	267			4	1	*		4	1	*					2	0.00%	0	0.00%
Fluid Bed Dry Scrubber	071			4	1	*		4	1	*		4	1	*	5	0.01%	2	0.09%
Dry Limestone Injection	041			4	1	*		4	1	*					50	0.07%	0	0.00%
Wet Limestone Injection	042			4	1	*		4	1	*					16	0.02%	0	0.00%
Duct Sorbent Injection	201			4	2	*		4	2	*		4	2	*	1	0.00%	0	0.00%
Furnace Sorbent Injection (Dry)	203			4	3	*		4	3	*		4	3	*	0	0.00%	16	0.75%
Limestone Injection, General	266			4	1	*		4	1	*					34	0.05%	0	0.00%
Catalytic Oxidation-Flue Gas Desulfurization	039				1	3			1	3			1	3	7	0.01%	0	0.00%
Flue Gas Desulfurization, General	264			4	1	*		4	1	*					6	0.01%	0	0.00%
Spray Tower	052				2	3			2	3					10	0.01%	3	0.14%
Spray Dryer, General	261			4	1	*		4	1	*					2	0.00%	0	0.00%
Mist Eliminator High Velocity	014					4				4					20	0.03%	9	0.42%
Mist Eliminator Low Velocity	015					4				4					8	0.01%	5	0.23%
Gravity Collection High Efficiency	004					4				4					39	0.06%	55	2.58%
Gravity Collection Medium Efficiency	005					4				4					114	0.16%	0	0.00%
Gravity Collection Low Efficiency	006					4				4					96	0.14%	0	0.00%
Multiple Cyclone w/o Fly	076					2				3					868	1.25%	494	23.15%
Multiple Cyclone w/ Fly Part. Air Filter Ash Reinj.	077		4			2	4			3					143	0.21%	358	16.78%
Multiple Cyclone, General	253					2				3					286	0.41%	0	0.00%
Centrifuge Collection High Efficiency	007					4				4					485	0.70%	56	2.62%
Centrifuge Collection Medium Efficiency	008					4				4					717	1.03%	65	3.05%

Table I-2.Control Device Rankings- Sorted by effectiveness and similar controls

(1=most effective, 4 = least effective)[1]

Control Device Description	Control Device Code	GCP	Solid Materials				Liquid Materials				Gas Materials				Inventory Database		Survey Database	
			Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	**Combustor Count**	**Percent of Total Combustors**	**Combustor Count**	**Percent of Total Combustors**
Centrifuge Collection Low Efficiency	009					4				4					144	0.21%	19	0.89%
Dynamic Separator (Dry)	056					4				4					4	0.01%	0	0.00%
Dynamic Separator (Wet)[3]	057				4	4			4	4					1	0.00%	1	0.05%
Wet Cyclonic Separator[3]	085				4	3			4	3					1	0.00%	5	0.23%
Single Cyclone Devices	075					4				4					133	0.19%	49	2.30%
Collectors, Settling Chambers, Separators-General	254					4									54	0.08%	0	0.00%
Low-Excess - Air Firing	029	x	3				3				3				116	0.17%	76	3.56%
Control Of % O2 In Combustion Air	033	x	3				3				3				118	0.17%	0	0.00%
Air To Fuel Ratio	212	x	3				3				3				137	0.20%	286	13.40%
Over - Fire Air (OFA), General	265		3												1	0.00%	0	0.00%
Baffle	078					4				4					4	0.01%	22	1.03%
Activated Carbon Adsorption	048		2	1			4	1			4	1			10	0.01%	0	0.00%
Alkalized Alumina	040			4	1	3		4	1	3		4	1	3	12	0.02%	0	0.00%

[1] These rankings are based on the experience of the members of the control technology task group, not on detailed control efficiency data.

[2] Wet scrubbers get some control of water soluble organics, such as formaldehyde, acetaldehyde, and acrolein.

[3] Cyclonic devices get some control of inorganics for coal, but those devices may not get any control of inorganics from other fuels.

[4] Asterisk denotes that the control device must be used in tandem with another control.

Table I-3.Control Device Rankings for Economics Analysis

(1=most effective, 4 = least effective)[1]

Control Device Description	Solid Materials				Liquid Materials				Gas Materials				Inventory Database		Survey Database	
	Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	Organic HAPs	Mercury	Inorganic HAPs	Metals	**Combustor Count**	**Percent of Total Combustors**	**Combustor Count**	**Percent of Total Combustors**
Fabric Filter			4	1			4	1					**933**	1.34%	**87**	4.08%
ESP				1-2				2					**1,051**	1.51%	**290**	13.59%
Packed-tower gas absorber			1	4			1	4			3	1	**10**	0.01%	**0**	0.00%
Venturi scrubber[2]			2	2-3			3	3					**132**	0.19%	**101**	4.73%
Scrubbers (no detail)[2]			2	3			2	3					**739**	1.06%	**167**	7.83%
Scrubbers - acid gas		4	1	*-3		4	1	*-3		4	1	*-3	**71**	0.10%	**16**	0.75%
Cyclones[3]			4	2-4			4	3-4					**3,085**	4.44%	**1,102**	51.64%
Activated carbon adsorption	2	1			4	1			4	1			**10**	0.01%	**0**	0.00%
Dry injection		4	1-3	*		4	1-3	*		4	3	*	**50**	0.07%	**16**	0.75%
Wet injection		4	1-2	*		4	1-2	*		4	2	*	**51**	0.07%	**0**	0.00%
GCP	3				3				3				**372**	0.54%	**362**	16.96%
Wet injection/fabric filter		4	1-2	1		4	1-2	1		4	2	*	**38**	0.05%	**0**	0.00%
Wet injection/ESP		4	1-2	1-2		4	1-2	2		4	2	*	**11**	0.02%	**0**	0.00%
Cyclones/fabric filter[3]			4	1			4	1					**229**	0.33%	**34**	1.59%
Cyclones/ESP[3]			4	1-2			4	2					**295**	0.42%	**180**	8.43%
Cyclone/acid gas scrubber		4	1	2-4		4	1	3-4					**12**	0.02%	**8**	0.37%
Cyclone/venturi or no detail scrubber			2	2-3			2	3					**318**	0.46%	**150**	7.03%
Cyclone/absorber			1	2-4			1	3-4					**6**	0.01%	**0**	0.00%
Cyclone/ESP/acid gas scrubber		4	1	1-2		4	1	2					**7**	0.01%	**3**	0.14%
Cyclone/ESP/venturi or no detail scrubber			2	1-2			2	2					**8**	0.01%	**10**	0.47%
Cyclone/ESP/absorber			1	1-2			1	2					**2**	0.00%	**0**	0.00%
Dry injection/fabric filter		4	1-3	1		4	1-3	1		4	3	*	**36**	0.05%	**15**	0.70%
Dry injection/ESP		4	1-3	1-2		4	1-3	2		4	3	*	**14**	0.02%	**1**	0.05%
Acid gas scrubber/ESP		4	1	1-2		4	1	2		4	1	*-3	**14**	0.02%	**5**	0.23%
Acid gas scrubber/fabric filter		4	1	1		4	1	1		4	1	*-3	**30**	0.04%	**3**	0.14%

[1] These rankings are based on the experience of the members of the control technology task group, not on detailed control efficiency data.

[2] Wet scrubbers get some control of water soluble organics, such as formaldehyde, acetaldehyde, and acrolein.

[3] Cyclonic devices get some control of inorganics for coal, but those devices may not get any control of inorganics from other fuels.

[4] Asterisk denotes that the control device must be used in tandem with another control.

Note: The preliminary costing data will be based on the information in this table. This table will also be used to give WG members an idea of what the preliminary MACT floor may be. The MACT floor will be determined using more rigorous analyses and emissions data.